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ABSTRACT

A study was conducted to determine the perceptions held by two-year college personnel regarding environmental trends related to educational programs, services, resources and economic development. Questionnaires were distributed to personnel in 430 colleges in the north central United States, requesting respondents to indicate their attitudes toward strategic planning and their degree of agreement or disagreement with 85 items describing environmental trends. Study findings, based on a 43% response rate, included the following: (1) respondents' attitudes toward strategic planning were favorable, as represented by an average rating of 5.618 on a scale of 1 to 7; (2) respondents agreed that there is an increased growth in the number and percentage of older persons; (3) respondents also expressed agreement with the statement that there will be growth in the number of microcomputers people will have access to; (4) a demographic shift to an older population, increased accountability, improved performance demanded of public agencies, increased emphasis on quality, shifting college education costs to students, and increased emphasis on economic development were all items rated over six on the seven-point scale of agreement; (5) among the other top 10 ranked trends were items related to competition among state agencies, less faculty mobility, emphasis by business and industry on increased productivity, and increasing numbers of people seeking convenient learning opportunities; and (6) electronics, computer-related occupations and computer equipment repair were seen as major trends in educational programming. (LAL)

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Environmental Trends and Assumptions as Identified by Two-Year Community, Junior and Technical College Personnel

by

Meredith L. Carter

Final Report
for
North Central Council of Community,
Junior and Technical Colleges

Indianapolis, Indiana
August 1, 1985

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Chapter I

Introduction

Two-year community and technical colleges currently confront a host of perplexing management problems. Among the most worrisome are stable or declining enrollments, greater growth of expenses than income, questions concerning the value of a college education, and unionization.

Although it is doubtful that many colleges or universities are undertaking serious strategic planning efforts, this management tool seems ideally suited to help guide institutions through the perilous present and future.

Instead of planning comprehensively and systematically, too many institutions try to solve their problems only to exacerbate others. In contrast, strategic planning involves a thorough analysis of an institution and its operating environment. The intended result is a coherent statement of the institution's goals, major operating objectives, and unifying themes.

The emphasis of strategic planning is not simply what issues are addressed but how they are addressed. Specifically, strategic planning implies a rigorous, comprehensive, and systematic approach.

The strategic planning process typically begins with a statement of the basic mission of the institution. This is necessary to identify which parts of the environment are relevant to focus for subsequent analyses.

Environmental analysis involves two primary parts: macroenvironmental and microenvironmental analyses.[1] The macroenvironmental analysis focuses on the big picture. For a higher

education institution this analysis should include consideration of relevant economic, demographic, socio-cultural, political, regulatory, and technical factors.

The microenvironmental analysis can be subdivided into two separate evaluations: external and internal. The first includes analyses of the economic sector within which the institution functions, the institution's current or potential constituencies, and competition. The internal analysis assesses the institution's resources (physical, financial, instructional, and administrative) and the preferences of various individuals or groups within the institution.

Hollowood stated the following: "If institutions are to plan well, they must conduct a carefully considered review of their values, ambitions, and image. They must carefully examine the nature of the external environment in which they operate. They must look inward and assess their strengths, weaknesses and balance. And they must begin taking a broader view of themselves as organizations in the public trust which service a variety of important social aims. Moreover, colleges and universities must begin to more fully understand the nature of their many activities, their multi-functionality, and the means of managing diversity. They must also become more informed about their role in the education enterprise and the effects of their competition and cooperation with other institutions. Increased knowledge of clientele groups and external publics is increasingly important. Next, the college and university of today must learn to position itself to provide a high level of quality programs and services to a carefully selected clientele. The institution must then select strategies which will carry it into the future with a minimum of wasted resources. Above all, the

institution must keep a keen vigilance for opportunity to provide additional service to society."[1]

Writings on responses to enrollment decline by Cameron, indicate that college administrators and managers are responding to conditions of decline by being exclusively conservative, protectionist, and efficiency oriented. This orientation is understandable because of the variety of pressures discussed above that contribute to this inclination. However, organizational theory prescribes an opposite orientation, one that focuses on flexibility, innovation, and proactivity. Empirical evidence suggests that these strategies, under conditions of decline, lead to effective adaptation whereas conservatism may lead to stagnation and possible demise.[2]

An alternative set of adaptive strategies has been presented, which is both consistent with theoretical prescriptions and proven effectiveness in coping with conditions of decline. The strategies involved domain defense, domain offense, and domain creation, implemented in sequential order. This alternative orientation may prove useful to those in institutions of higher education who are obliged to lead their institutions through the less-than-munificent environmental conditions of the 1980s. For example, these strategies could be implemented by department chairpersons in their efforts to preserve departmental viability, by presidents concerned with preventing or

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[1] James R. Hollowood, "College and University Strategic Planning: A Methological Approach," Planning for Higher Education, 9:4 (Sumner, 1981) pp. 8-18.

[2] Kim Cameron, "Strategic Responses to Conditions of Decline,: Journal of Higher Education, 54(July/August, 1983), 359.

reversing enrollment or revenue declines, or by state system officers in maintaining a resource base for the state system of higher education. That is, regardless of the level of analysis or the specific individuals involved, the implementation of these strategies under conditions of decline may prove to be more effective than would be a strategy of reactivity, conservatism, or protectionism. Their implementation involves a focus on effectiveness concerns and management of the external environment in place of consideration of only efficiency issues and a reactive stance. Although administrators may be required to be conservative and efficiency oriented, alternative strategies emphasizing effectiveness and innovation must also be considered.

Kotler and Murphy concluded that: If colleges and universities are to survive in the years ahead, a strong emphasis on planning is essential. The type of planning that appears to be most appropriate for the future is "strategic" market planning. It is one of the most revolutionary commercial sector developments in the last ten years and promises to be a potent tool for use in nonprofit organizations.

Most colleges and universities are not set up with a strategic planning capacity. They are basically good at operations, that is, efficiently doing the same things day after day. Patterns of operation were traditionally established to meet the environmental conditions and opportunities; the schools' manner of conducting their affairs are likely to persist long after these procedures have lost their effectiveness in new environments.

Organizational leaders, boards, major administrators, and faculty representatives--are the only ones who can modify organizations through

time as the environments change. Yet few collegiate leaders are able and willing to focus systematically on change.[3]

Purpose of the Study

The purpose of the study was to determine the two-year community and technical college personnel's perceptions of environmental trends as related to educational programs, services, resources, and economic development.

Specific questions which were to be answered through descriptive and evaluated research included some of the following examples:

1. There is evidence of greater cooperation between business and your college in providing in-plant training programs.
2. The number of high school graduates in your service area will continue to decline during the next five year period.
3. Massive computer networks dedicated to all types of uses will provide impetus for major growth of clerical occupations.
4. Moderate increases in "older occupations" (i.e., operating engineers, heavy equipment operators, auto mechanics, heating, cooling and refrigeration technicians and appliance service technicians) are occurring.
5. List other assumptions and trends that are occurring in your college community that have not been included.

Data Collection

Data for the study was collected entirely through a confidential questionnaire consisting of scaled items and one open-ended question. Scaled items were designed to reveal the extent to which environmental factors and trends were present in the various college communities.

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[3] Philip Kotler and Patrick E. Murphy, "Strategic Planning for Higher Education," Journal of Higher Education, 52(May, 1981), 470.

Organization of the Study

The study was developed in five chapters, a selected bibliography and an appendix. Chapter I contains the introduction, purpose of the study, data collection, and the organization of the study.

Chapter II contains a brief review of the literature and research related to strategic planning and trends.

Chapter III contains the presentation of the methods and procedures used to conduct the study.

Chapter IV contains a report of the data and attendant analysis.

Chapter V contains a summary.

An appendix followed by a selected bibliography were attached as concluding sections.

Chapter II

Review of the Literature

The current study examines the perceptions of two-year community and technical college personnel toward environmental trends related to the local communities. The trends are important in strategic planning as an institution charts its future direction.

A perusal of the strategic planning literature reveals that strategic planning should not be confused with any of the planning levels currently used in higher education. Strategic planning takes a long-run approach, but the focus is much more comprehensive and strategic than traditional long range planning. Strategic planning is defined as the process of developing and maintaining a strategic fit between the organization and its changing marketing opportunities.[4]

Doyle and Lynch expressed the idea that with limited resources and operating in a rapidly changing environment, colleges need to formulate strategies for making the most effective use of resources.

Two strategies a college can pursue to strengthen its competitive position are: selection of priority areas and improving its relative position within these areas. The first means that the college must plan to transfer resources from small and declining areas into large and growing ones. Institutions with a disproportionate share of their resources in areas of low student demand attract a small volume of applications and those accepted tend to be of lower quality.

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[4]Kotler, p. 471.

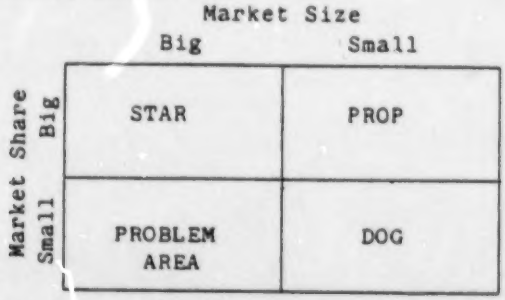
The second aspect of strategy is strengthening the college's competitive position within any area. This depends primarily on its comparative achievements in research and teaching. The main determinant of a college's attractiveness for students, staff and resources is its reputation for achievement. But to maintain such a differential advantage a department needs to be built up into a viable size. A large department enables staff to specialize and build up expertise. It possesses the flexibility to allow members to take sabbaticals and study-leave without disrupting schedules. Large departments also offer major economics of scale in administration and teaching (teaching a class of 20 is not twice as costly as teaching one of 10).

The fact that "market size" and departmental strength are key determinants of performance are not new. In fact these concepts have revolutionized the way leading companies have approached strategic planning in recent years. Central to this approach is the product portfolio matrix formulated by General Electric and the Boston Consulting Group which offers companies a means of categorizing their major products in terms of opportunities and appropriate strategies. It is a modified form of these ideas which are developed and subsequently modeled and tested within a least-squares framework.

Two key determinants of strategy were noted above, market size and departmental strength. The market size of any type of course can be approximated by the proportion of all undergraduate applications going to it (e.g. 8% of all undergraduate applicants for business studies apply to X College). The hypothesis is then that colleges with more departments in bigger market areas and with large market shares are more competitive in their performance. Figure 1, which modifies the

mnemonics of the Boston Consulting Group's "planning matrix", illustrates the strategic ideas. Here the college classifies its courses (product portfolio) into four types:[5]

Figure 1--Planning Matrix



King and Cleland stated that a planning system must have standards by which to evaluate the planning system. These standards are the criteria on which the planning system design was to be based. The issue of the standards to be applied to a planning system is therefore a simple one: "To what degree does the system do what it was intended to do?" "Does the system entail those elements and features that were established for it?"

In terms of the planning system, the criteria or basic premises are as follows:

1. Professional planners can facilitate a planning process, but they cannot themselves do the organization's planning.
2. Planning activities should be performed by the managers who will ultimately be responsible for the implementation of the plans.
3. Creative strategic planning is inherently a group activity, since it must involve many different subunits of the organization and many different varieties of expertise.

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[5]Peter Doyle and James E. Lynch, "A Strategic Model for University Planning," Journal of the Operational Research Society, 30(July, 1978), 605.

4. A "planning organization" must be created to deal with the conception and development of strategic plans. This organization provides the climate and mechanisms through which individuals at various levels are provided a greater opportunity to participate in determining the organization's future.

5. Strategic planning involves much more than numerical extrapolations of trends; it involves as well the selection of missions, objectives, and strategic alternatives.

6. Managers must be motivated to spend time on strategic planning through a formalized systems and organization approach that also permits their contribution to the planning process to be assessed.

7. The planning process must provide for the development of relevant data bases, qualitative as well as quantitative, that facilitate the development of environmental forecasts and the evaluation of strategic alternatives.

8. An evaluation of future environmental trends, competitive threats, and internal organizational strengths and weaknesses is essential to the strategic planning process.

9. Evolving ideas within the organization provide the point of departure to develop future products and markets.

10. The chief executive's responsibility for developing future organizational strategy centers around the development of a "strategic culture" in the organization, the final evaluation and selection of strategic alternatives, and the design of a master plan of implementation for these alternatives.[6]

Ansoff presented a systematic approach for early identification and fast response to important trends and events which impact on the organization. The approach is called strategic issue management (SIM) and has been tested by private and some non-profit enterprises.

The principal steps in the SIM procedure uses three possible sources of information about impending strategic issues: the trends in

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[6]William R. King and David Cleland, Strategic Planning and Policy (New York: Van Nostrand Reinhold Company, 1972), pp. 354-355.

the external environment, the evolutionary trends within the enterprise, and trends in its performance.[7]

Environmental Scanning

Environmental scanning is a methodology for coping with external social, economic and technical issues that may be difficult to observe or predict but that cannot be ignored and will not go away. The scanning process seeks to identify emerging situations, hazards and opportunities that are environmentally caused and that may be very difficult for the administration or the organization to internalize.

Effective environmental scanning is proactive. The focus is on future events, future issues, future decisions and future data. The process will need to foresee or predict answers to questions as "Will?" or "What?"

The challenge is to identify the ways in which emerging government policy might affect your organization, in any or all of the dimensions it influences, for example:

Competitive (product standards, merger limits, export licences, import transactions)

Financial (interest rate ceilings, deficit financing)

Operational (reporting rules, OSHA, tax rates and incentives)

Technological (research funding, research regulation, such as DNA and nuclear)

Stakeholders (job training, EEO, accounting and financial reporting, pension funding, collective bargaining, corrupt practices)

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[7] H. Igor Ansoff, "Strategic Issue Management," Strategic Management Journal, I(December, 1979), 136.

The financial dimension is the only one that is in the nature of a continuum. The character of the organization and the resources it devotes to environmental scanning will influence where, in time, environmental scanning should focus. If the organization is unable or unwilling to respond quickly with strategic change to new strategic input, its focus may be best in the 5-20 year range. More agile institutions may focus on the 3-10 year time horizon, but may find environmental input important for tactical purposes within that range. The organization that is initiating or renewing its environmental scanning efforts must not only take the longer view to begin to identify emerging issues but the shorter view as well to capture the intelligence foregone by not effectively scanning the long horizon in the past.

The purpose of dimensioning and subdividing the environment for scanning purposes is to increase the probability that signals in the environmental will be accurately observed and successfully decoded. The inherent danger of this approach is that we may over-simplify. Some emerging issues may not be identified unless elements of more than one dimension are combined. Emerging issues related to robotics will be characterized differently if they arise from the combined perspectives of the stakeholder, technology and operational dimensions, than if viewed from the technological perspective alone. The danger serves only to emphasize the fact that successful environmental scanning is not a solitary task. Instead, specialists from all the dimensions and important segments of the organization should interactively identify key emerging issues. More about that when we consider the politics of environmental scanning.

The outcomes of environmental scanning are guesses about what events or states of nature will occur, their timing, and their importance to the institution. Our information is limited, just as it is when we do any sort of planning--short range or strategic. Our ability to influence environmental outcomes, as compared with budgets or strategic plans, is further limited because we have few if any control mechanisms to impose. We can unilaterally cut budgets but we cannot unilaterally reduce interest rates!

In practice we document and communicate our environmental guesses in several socially accepted forms. We set targets or goals. For example, we may set a target for increasing productivity without knowing what combination of complex changes in people, process and technology systems must or will occur to achieve the target. We forecase future circumstances or events by building knowledge about past relationships and making assumptions about future relationships between influencing factors and outcomes.

Chapter III

Organization and Design of the Study

The basic design of the research can be classified as a field study, with data gathered exclusively through confidential questionnaires.

The population for the study was defined as 430 two-year community and technical colleges in the North Central States, which include the states of Arizona, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, West Virginia, Wisconsin, and Wyoming.

Instrumentation

An administrator survey instrument (see appendix) was developed and validated by other two-year college personnel.

The instrument consisted of one open-ended question and scaled items using bi-polar objectives. The scale used was one to seven.

Method

This study employed a descriptive design that utilized survey data collection procedures. The 85 questions and variables (environmental trends) included in the survey were selected a priori, from review of the literature on environmental trends, and from planning documents of other two-year colleges.

This was a population study including presidents, and personnel from instruction, student services, business affairs, community services/continuing education, research and development units. A total

of 852 usable surveys were returned out of the 1992 possible for a return rate of 43 percent.

The respondents were asked to answer questions and rate the 85 questions and variables (environmental trends). The variables were rated on a scale one to seven. The data was processed by a computer and for each variable a mean, standard deviation, skewness, bar chart and normal probability plot were computed.

The respondents were also asked to list other assumptions and trends that were occurring in the college community that was not included in the rated items.

The data was discussed in the context of mean rankings and other trends identified.

Chapter IV

ANALYSIS OF DATA

This study addressed the following question: what, in the view of community, and technical college personnel are environmental trends present in the community as related to educational programs, services, resources, and economic development.

Attitude toward Strategic Planning

Community and technical college personnel reported that their personal attitude toward strategic planning was a response average of 5.618 on a scale of one to seven.

Current Trends

The data concerning the 85 questions (environmental trends) indicate that the top ranked trends were related to the number and percentage of older persons making up the population. (see Table 1).

An aging of the population is also a trend nationally. In 1982, the median age reached 30.6 years and finally passed the record set shortly after World War II. The median age had been 28 in the years from 1965 through 1972. In 1990 it will be 33 and there will be a dearth of teenagers.[8]

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[8]"The U.S. Economy to 1990", The Conference Board, Report No. 864, 1985. p.3.

Table 1--Top Ten Rankings by Two-Year College Personnel on Environmental Trends

Rank	Trend	Mean	Standard Deviation
1	There is increased growth in the number and percentage of older persons making up the population.	6.293	.884
2	There is growth in the number of microcomputers people will have access to both at work and at home.	6.259	.938
3	The demographic shift to an older population will be increasingly important in all spheres of life.	6.236	.865
4	There is increased accountability and improved performance demanded of all public agencies, especially public schools and colleges along with an increased emphasis on quality of offerings.	6.069	.966
5	The shifting of costs to students for their education is requiring more emphasis on financial aid.	6.044	.958
6	There is increased emphasis by all types of state agencies on economic renewal and development and in the recruitment of new industries into the state.	6.010	1.045
7	Competition among state agencies for resources will increase making it even more difficult to maintain the current level of state support for higher education.	5.995	1.132
8	There will be less faculty mobility as faculty become older and positions outside the institution diminish.	5.812	1.22
9	There is a major emphasis by business and industry on increased productivity among employees to combat diminishing profit margins.	5.791	.961
10	An increasing number of people are seeking learning opportunities at times and places that are convenient to them.	5.773	1.075

The top ten trends were varied but have some overtone to shifts in populations, economic development, use of computers, increased accountability, shifting costs to students, and competition for resources.

Following the above related trends two-year college personnel expressed concern in selecting trends of: (11) availability of trained workers and demands for retraining of unemployed; (12) the increased push for job security and/or longevity by workers in business, industry and government; (13) increased productivity by faculty and staff by relying on technology, communications and development of new skills; other trends include moving away from traditional educational programming and services toward a more flexible, diversified, technological intensive and efficient delivery system; and the continue of high school graduates. (See Table 2.)

Table 2--Second Ten Rankings by Two-Year College Personnel on Environmental Trends

Rank	Trend	Mean	Standard Deviation
11	Availability of trained workers and demands for retraining of unemployed are key factors affecting the enhancement, creation, and growth of education programs offerings.	5.755	1.027
12	There is an increasing push for job security and/or longevity by workers in business and industry.	5.700	1.047
13	The cost to recruit, relocate, hire compensate, train and retrain professional employees will continue to escalate.	5.695	1.046
14	Demands for increased high quality productivity in your institution create pressure on full-time staff to rely more on technology, improve communications, and the development of new skills.	5.630	1.151
15	Would you describe your personal attitude toward strategic planning as: Very Unfavorable (1)... Very Favorable (7)	5.618	1.253
16	The age groups projected to experience the greatest growth within the next five years are the 22 to 44 year category and those 45 of age and older.	5.594	1.292
17	Electrical/Electronics Technicians	5.493	1.093
18	The trend is from traditional programming and services toward more flexible, diversified, technological intensive and efficient delivery of educational content and student services.	5.491	1.161
19	The number of high school graduates in your service area will continue to decline during the next five year period.	5.445	1.743
20	There is a critical shortage of two-year college instructors in electronic technology.	5.421	1.326

Educational Programming Trends

Another series of questions asked respondents to indicate their perceptions of educational programming trends in the college community.

Electrical/Electronic technicians surfaced as the top trend in most of the college communities, but computer repair, telecommunication technician and computer related fields also ranked high (see Table 3).

Table 3--Educational Programming Trends

Rank	Trend	Mean	Standard Deviation
1	Electrical/Electronics Technician	5.493	1.093
2	There is evidence of rapid increases in the emergence of new computer-related occupations, (i.e., computer software developers, computer graphics technicians, and microcomputer specialists).	5.394	1.118
3	Data Processing Equipment Repair	5.394	1.118
4	There is a growing shortage and higher demand for trained technical personnel in electrical, software, nuclear, petroleum and waste removal technology.	5.295	1.138
5	Telecommunication Technician	5.134	1.191
6	There is evidence of rapid increases in the emergence of new technical occupations (i.e., telecommunications operator, electronic technician, computer services technician, micro-processing technician, and robotic technician).	5.086	1.502
7	Computer-Peripheral Operators	5.024	1.087
8	There are promising new careers in restaurant food preparation, hotel management, and culinary arts.	4.896	1.393

Within the questionnaire several clusters of questions can be grouped to form a trend pattern for an area of interest. For one area

environmental trends were present or anticipated to create needs for increased training for second careers, retraining, training for adults not previously in the workforce, expanded career counseling services, involvement of business and industry in programs and services, and special services and counseling for services for special client groups. (See Table 4.)

Table 4--Trends that Create Needs for Retraining, Training for Adults, Counseling, and Special Services

Rank	Trend	Mean	Standard Deviation
1	There is increased growth in the number and percentage of older persons making up the population.	6.293	.884
2	The age groups projected to experience the greatest growth within the next five years are the 22 to 44 year category and those 45 of age and older.	5.594	1.292
3	There is evidence of greater cooperation between business and your college providing in-plant training programs.	5.050	1.577
4	Increasing support for the on-the-job training approach in the private employment sector supported by tax incentives and federal funding is occurring.	4.454	1.498
5	Your state's economic downturn will continue but signs of an improved economy are emerging.	4.413	1.530
6	There is an increased rate of technological advancement displacing greater numbers of employed persons or reducing hours of work in a wider variety of occupation fields in your service area.	4.333	1.569

Another area of interest was trends that will impact enrollment at the colleges and may have some influence on program offerings, needs for space, equipment, staff and curriculum modifications. (See Table 5.)

Table 5--Trends that Will Impact Enrollment, Influence Program Offerings, Space, Equipment, Staff, and Curriculum Offerings

Rank	Trend	Mean	Standard Deviation
1	The number of high school graduates in your service area will continue to decline during the next five year period.	5.445	1.161
2	There is evidence that higher education skills will be required in almost all levels of employment.	5.021	1.592
3	In your service area the college is moving programming into community centers in response to needs of isolated individuals and groups.	4.882	1.708
4	Revitalization of your service area, including development, redevelopment, and the enlargement of the central business districts, is taking place.	4.265	1.720
5	A loss of population caused by outward migration within your service area is occurring.	4.022	2.092
6	There is increasing pressure in your service area to consolidate occupational education at secondary and post-secondary levels into a unified service delivery system.	3.917	1.797

One open-ended question was used to ascertain additional trends in the college communities not covered by other questions in the questionnaire. For instance, one administrator stated:

> One of the most serious impacts on programs appears to be the thrust of the Carl Perkins Vocational Act. The emphasis on the new, innovative special needs, special emphasis areas, and a movement away from maintenance of effort could result in a weakening or elimination of the vocational core of courses which comprise the college.

Another administrator stated:

> The trend of small colleges attempting to diversity to "include everything for everybody" especially high cost high-tech program. Community colleges are developing off

campus offerings without adequate resources to provide quality equivalent to our campus programs.

In reference to working with business and industry, one administrator stated:

> Businesses are beginning to realize that worker attitudes must be adapted to increase productivity. We are a movement toward a greater emphasis on human relations in the business environment! It is going to be important to be able to assert business in training employees--supervisors in areas of effective development i.e. work ethics, worker-supervisor relationships and the like. If we don't start addressing need for improvement in quality of performance we are going to be in trouble!

One administrator stated:

> Higher education is failing to engage in strategic planning on a state-wide level which will result in overbuilding. The state must carefully plan for and determine the location of high tech programs such as laser/electric-optics, robotics, telecommunications, nuclear medicine, etc.. Otherwise the individual colleges will create too many programs, each of which will be less quality than would be the case with appropriate planning and a more rational and deliberate allocations of resources.

The following is a partial list of comments from administrators about trends in their college communities:

> Trend toward part-time enrollment. Trend toward low skill service occupations.
>
> Increasing interest in technical education; formation of an industrial development task force; and establishment of a community goals task force.
>
> Nation-at-risk focus causing all sorts of quick-fix recommendations for higher education especially in area of governance/legislative.
>
> Our community is rapidly changing from a closed down steel mill and union organization city to a high technology area.
>
> More students taking less credit hours, due to high employment rate in the community -- many working students. International Trade has implications. Increase in minorities and protected classes. Small business enterprises will increase and more service type jobs will be available. Wider gap between low skill job and high skill jobs.

Computer Aided Design/CAM - increased demand.

More non-traditional students are returning to school.

Trend toward need for broader educational backgrounds especially in management positions. Need for people who can adapt to change rather than being locked into specialty.

Customized industry training. 26% of our population are older Americans.

Declining state resources to support proportionate escalation of the costs for state of the art equipment for new technologies.

An analysis of the responses to the open-ended questions indicate the following trends.

-Most community and technical colleges are serving more part-time students than in previous years.

-Many community and technical colleges are developing and delivering customized, in-house training programs for business and industry.

-Business and industry need workers with good attitudes, broader based and able to adapt to change.

The open-ended questions were also sorted by administrative units (i.e. presidents, business affairs, community services/continuing education, instructional services, student services, research/institutional, college development).

The presidents indicated some of the following observations:

Increasing competition of proprietary schools to perform many of the occupation functions of community colleges. Universities and community colleges are competing for minority students through intensive recruitment efforts. Legislative "caps" on enrollment--real or perceived, directly or indirectly - unwillingness to pay for indiscriminate growth.

Since this is a rural CC, farm and farm related skills are in constant demand. With the poor financial farm outlook (future CC's must work with the farm population to help them "keep their farms". Computer uses and help for the farm community will be essential.

1) Shift within the College Community to much older population. Emphasizes need to expand outreach programs

services to senior citizens, retraining and enrichment programs for adults. 2) Need to provide greater opportunities for faculty & staff retraining, and career development programs as age of average faculty member increases.

Trend -- workers now willing to accept lower paying jobs. After the collapse of steel industry workers did not want to retrain. Now attitudes and actions are in a state of change.

The following is a partial list of the comments by administrators from business affairs units:

1) Expansion of offerings for seminars, workshops, short courses. 2) Shift from full-time to part-time student enrollments. #) Female enrollment population growing faster than Male enrollments. 4) Development of specialized training for business and industry.

Need for training of post-secondary for entry into regular occupational programs. Those under qualified to successfully compete and complete would be given additional pre-entry training.

Declining state aid. Maximum tuition rates allowed. Collective bargaining for first master contract. 20% in utility rates.

ESL programs on increase. Facilities management program - great demand for building engineers and maintenance people.

Administrators from the community services/continuing education unit stated:

Agriculture continues to become highly mechanical and computer oriented, making the small farmer a thing of the past. Chemicals are an essential feature of the new agriculture. Therefore, we have demand for computer operation and knowledge of chemicals.

I am aware of an increased need of educational institutions to think in terms of being (quickly) responsive to business and industry. It is only in this way that institutions can provide for their education and training needs.

Increased demand for two-year technical programs. Requests for additional placement services. On site credit programs for business/industry.

Decline in english test scores indicating a change in emphasis placed on the written languages and its attendance careers. Also increase in Office Information--Word Processor skills and related careers.

In reference to instructional services the administrators reported:

Decline in the mathematical and scientific abilities of high school graduates. Decline in general academic abilities of high school graduates. Decline in general population of interest in teaching. Decline in support for education by the general population. Decline in motivation for education in h.s. graduates.

Great need for upgrading technological teaching equipment during a time of reduced state aid and financial resources.

More emphasis on articulation and cooperation between educational institution. More emphasis on recruiting potential students. Less emphasis on visits to college by industry to recruit employees.

Most health related occupations have declined in our area. Most hospitals have at least one wing closed in the area.

Enrollments will decline--they have in some schools not ours. Faculty salaries will continue to rise because tenured faculty will stay. We will have increasing numbers of non-traditional and/or part-time students. Everyone will need to know computers. Percentage of women in college will continue to rise.

Administrators from the student services unit reported:

Generally our college is a reflection of our society. Information and service jobs have a bright future. Certain trade and industrial opportunities look very uncertain.

Lack of state support for community colleges. No state support for capital improvement.

Institutional cooperation; co-sponsored programs; summer elder hostel; summer camp programs.

There is a minor trend to demand accountability of performance by college instructors. Instructors will have to learn how to teach, not just be subject-matter qualified. Job security will become a much bigger issue than salary with instructors.

Research/Institutional units indicated:

Outmigration - up; Industrial Development - up; college enrollment - down; outlook for the future enrollment - down.

Shrinking grants and gifts. Community college becoming focus of "attention" given secondary schools. Push for better planning and communication and good management. Possible loss of students with lower financial aid. Marketing by other institutions. Increased minority representation in college

(with problems of adequate preparation). Need for both general and specific education. Overloaded administrators.

Decline in District's assessed valuation. Strengthening admission requirements for certain programs. Greater emphasis on assessing students' outcomes.

Enrollment may be inversely related to job availability. Problems relating to single-parent families (especially mothers) and their educational opportunities are critical.

Administrators in the college development unit stated:

Greater emphasis on fund raising for student financial aids. Difficulty adapting to a marketing orientation.

Increasing direct involvement in area economic development by providing direct assistance in addition to training.

Less JTPA related training as laid-off employees return to their jobs. Only hardcore unemployed remain. Growing awareness by business of the long range sales value of loaned equipment to college programs.

Tax base stabilized. Increasing attitude of "let users pay". Unwillingness to increase taxes. Growth of women and minorities in work force. Decline of worker mobility and opportunity within companies. Increase demand for adult ed in general and lifelong learning concept.

Chapter V

Summary

Purpose of the Study

The purpose of the study was to determine the two-year community and technical college personnel's perceptions of environmental trends as related to educational programs, services, resources, and economic development.

Specific questions which were to be answered through descriptive and evaluated research included some of the following examples:

1. There is evidence of greater cooperation between business and your college in providing in-plant training programs.
2. The number of high school graduates in your service area will continue to decline during the next five year period.
3. Massive computer networks dedicated to all types of uses will provide impetus for major growth of clerical occupations.
4. Moderate increases in "older occupations" (i.e., operating engineers, heavy equipment operators, auto mechanics, heating, cooling and refrigeration technicians and appliance service technicians) are occurring.
5. List other assumptions and trends that are occurring in your college community that have not been included.

Data for the study was collected entirely through a confidential questionnaire consisting of scaled items and one open-ended question. Scaled items were designed to reveal the extent to which environmental factors and trends were present in the various college communities.

Summary of Findings

Specifically, the administrators and other two-year college personnel were asked to comment on their attitude toward strategic

planning and also to respond to questions that related to trends in their college community. Comments were also requested on one open-ended question which asked what other assumptions and trends are occurring in your college community.

The attitude toward strategic planning was indicated by an average response of 5.618 on a seven point scale. Respondents indicated that there is increased growth in the number and percentage of older persons making up the population. This ranked as number one of all responses with a mean average of 6.293.

The growth in the number of microcomputers that people will have access to both at home and at work was indicated by an average responses of 6.259 on the seven point scale.

A demographic shift to an older population, increased accountability, improved performance demanded of all public agencies, increased emphasis on quality, shifting college educational costs to students, and increased emphasis on economic development were items rated over six on the seven point scale with 6.236, 6.069, 6.044, and 6.010 respectively.

Rounding out the top ten ranked trends were items that related to competition among state agencies for resources at 5.995, less faculty mobility at 5.812, major emphasis by business and industry on increased productivity at 5.791, and the increasing number of people seeking learning opportunities at times and places that are convenient at 5.773.

The open-ended question revealed responses from administrators such as the following:

Higher education is failing to engage in strategic planning on a state-wide level which will result in overbuilding. The state must carefully plan for and determine the location of high tech programs such as laser/electric-optics, robotics, telecommunications, nuclear medicine, etc.. Otherwise the individual colleges will create too many programs, each of which will be less quality than would be the case with appropriate planning and a more rational and deliberate allocations of resources.

Trend toward part-time enrollment. Trend toward low skill service occupations.

Increasing interest in technical education; formation of an industrial development task force; and establishment of a community goals task force.

More students taking less credit hours, due to high employment rate in the community -- many working students. International Trade has implications. Increase in minorities and protected classes. Small business enterprises will increase and more service type jobs will be available. Wider gap between low skill job and high skill jobs.

Computer Aided Design/CAM - increased demand.

More non-traditional students are returning to school.

Trend toward need for broader educational backgrounds especially in management positions. Need for people who can adapt to change rather than being locked into specialty.

Customized industry training. 26% of our population are older Americans.

Declining state resources to support proportionate escalation of the costs for state of the art equipment for new technologies.

The study also investigated the perceptions of two-year college personnel toward the trends in educational programming. Electronics, computer-related occupations and computer equipment repair were the top rated trends in programs with a mean average of 5.493, 5.394, and 5.394 respectively.

The other trends in terms of educational programming that ranked over five were trends in the growing shortage and higher demand for trained technical personnel in eletrical, software, nuclear, petroleum, waste removal, telecommunication, robotics, and computer peripheral operators.

APPENDICES

Appendix A

Administrative Survey Instrument

Administrative Survey Instrument

This study is being conducted to provide useful information to community, junior and technical college administrators about the various environmental trends which can impact educational programs, services, and resources. Information for the study is being gathered through the questionnaire. The final value of the study, therefore, will depend upon the frankness and care with which you answer the questions.

All answers which you make available will remain confidential and will not be released in identifiable form.

Upon completing the questionnaire, please return it in the envelope provided. A copy of the results will be sent to you after completion of the study.

Please place a check mark at the point on the scale which, based on your experience and observation with present day trends, represents the extent of your agreement/disagreement with the statement.

Example:

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

You may begin.

1. How much experience have you had with strategic planning on your job?

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /

None A Great Deal

2. Which one of the following best represents the time period covered by your institution's strategic plan?

_____One Year
_____Two Years
_____Three Years
_____Four Years
_____Five Years
_____Ten Years
_____Other (specify)
_____

3. Would you describe your personal attitude toward strategic planning as:

Very Unfavorable / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Very Favorable

4. The age groups projected to experience the greatest growth within the next five years are the 22 to 44 year category and those 45 of age and older.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

5. Your state's economic downturn will continue but signs of an improved economy are emerging.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

6. There is evidence of greater cooperation between business and your college in providing in-plant training programs.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

7. There is an increased rate of technological advancement displacing greater numbers of employed persons or reducing hours of work in a wider variety of occupational fields in your service area.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

8. Increasing support for the on-the-job training approach in the private employment sector supported by tax incentives and federal funding is occurring.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

9. There is increased growth in the number and percentage of older persons making up the population.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

10. There is a re-emphasis by your institution on cost efficient, instructional technologies, including cable and satellite television, video tapes and disc, computer-assisted instruction, home information systems and other electronic communication devices.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

11. A loss of population caused by outward migration within your service area is occuring.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

12. An increasing number of people are seeking learning opportunities at times and places that are convenient to them.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

13. The number of high school graduates in your service area will continue to decline during the next five year period.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

14. Revitalization of your service area, including development, redevelopment, and the enlargement of the central business districts, is taking place.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

15. There is increasing pressure in your service area to consolidate occupational education at secondary and postsecondary levels into a unified service delivery system.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

16. There is emergence of new technologies in your service area arising from the research, development, and adaptation of new energy sources.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

17. There is evidence of rapid increases in the emergence of new technical occupations (i.e., telecommunications operator, electronic technician, computer services technician, microprocessing technician, and robotic technician).

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

18. There is evidence of rapid increases in the emergence of new occupations (i.e. genetic counselor, bionic medicine specialists, health aides, recreation therapists and halographic specialists).

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

19. There is evidence of rapid increases in the emergence of new computer-related occupations, (i.e, computer software developers, computer graphics technician, and microcomputer specialists).

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

20. There is growth in the number of microcomputers people will have access to both at work and at home.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

21. Massive computer networks dedicated to all types of uses will provide impetus for major growth of clerical occupations.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

22. There is a critical shortage of two-year college instructors in computer science.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

23. There is a critical shortage of two-year college instructors in electronic Technology.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

24. There is a critical shortage of two-year college instructors in mathematics.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

25. There are shortages of two-year college instructors in chemistry and physics.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

26. There are shortages of two-year college instructors in nursing and other allied health services.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

27. The cost to recruit, relocate, hire, compensate, train and retrain professional employees will continue to escalate.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

28. There is a major emphasis by business and industry on increased productivity among employees to combat diminishing profit margins.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

29. There is increased emphasis by all types of state agencies on economic renewal and development and in the recruitment of new industries into the state.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

30. There are promising new careers in restaurant food preparation, hotel management, and culinary arts.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

31. There are promising new careers in public relations and advertising.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

32. There is tremendous growth anticipated in health fields such as occupational and physical therapy, radiology, as well as medical and dental programs administered by nurses and technicians.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

33. There is a growing shortage and higher demand for trained technical personnel in electrical, software, nuclear, petroleum and waste removal technology.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

34. Moderate increases in "older occupations"(i.e., operating engineers, heavy equipment operators, auto mechanics, heating, cooling and refrigeration technicians and appliance service technicians) are occurring.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

35. Needs in the following professions can be adequately provided for at existing levels of training: data entry clerks, bookkeepers, typists, diesel, and auto mechanics.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

36. There is a growing shortage and higher demand for trained personnel in accounting, banking, and other financial professions.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

37. Increased emphasis on employment of qualified minority faculty will continue.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

38. There is an increasing push for job security and/or longevity by workers in business and industry.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

39. There will be less faculty mobility as faculty become older and positions outside the institution diminish.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

40. Competition among state agencies for resources will increase making it even more difficult to maintain the current level of state support for higher education.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

41. There is increased accountability and improved performance demanded of all public agencies, especially public schools and colleges along with an increased emphasis on quality of offerings.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

42. The shifting of costs to students for their education is requiring more emphasis on financial aid.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

43. The demographic shift to an older population will be increasingly important in all spheres of life.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

44. Availability of trained workers and demands for retraining of unemployed are key factors affecting the enhancement, creation, and growth of education programs offerings.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

45. Demands for increased high quality productivity in your institution create pressure on full-time staff to rely more on technology, improve communications, and the development of new skills.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

46. In your service area the College is moving programming into community centers in response to needs of isolated individuals and groups.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

47. There is evidence that higher education skills will be required in almost all levels of employment.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

48. New jobs are projected in your service area in robotics, and automated manufacturing.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

49. New jobs are projected in your service area in legal assistants.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

50. There is evidence of rapid increases in programs for retraining and job placement of laid-off workers.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

51. The trend is from traditional programming and services toward more flexible, diversified, technologically intensive and efficient delivery of educational content and student services.

Strongly Disagree / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Strongly Agree

The following occupations/technologies are to be rated on the seven point scale from declining to rapidly growing, based on observation, analysis, and experience from your institutions perspective.

52. Data Processing Equipment Repair

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

53. Computer Programmers

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

54. Office Machine Repair

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

55. Employment Counselors

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

56. Corrections Officers

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

57. Dental Hygienist

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

58. Physical Therapist

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

59. Computer-Peripheral Operators

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

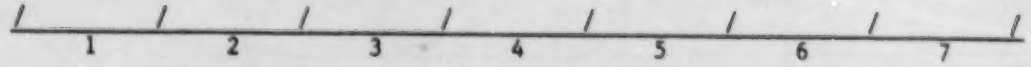
60. Accountants

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

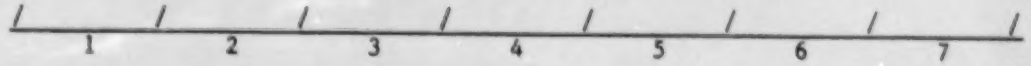
61. Health-Lab Technicians

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

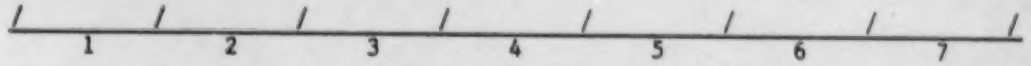
62. Electrical/Electronics Technicians



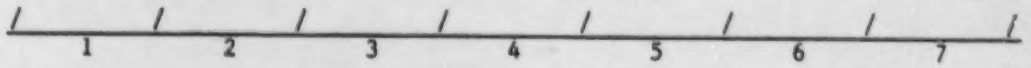
63. Electrical/Electronics Assemblers



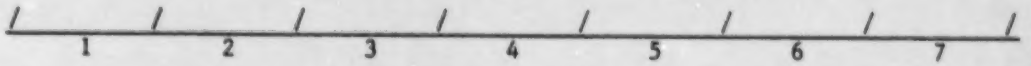
64. Ultrasound Technologist



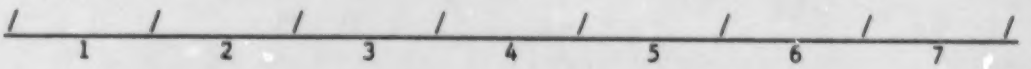
65. Instrumentation Technician



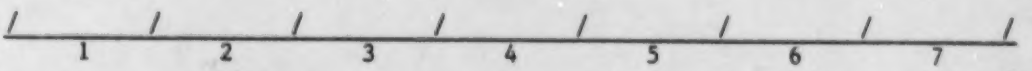
66. Semiconductor Development Technician



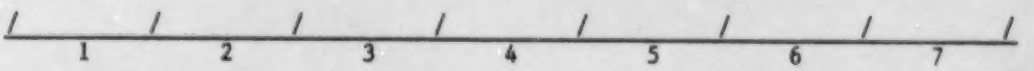
67. Laser Technician



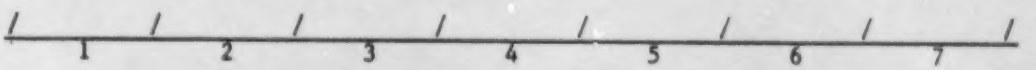
68. Tool Programmer, Numerical Control



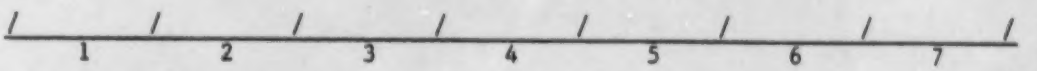
69. Pollution Control Technician



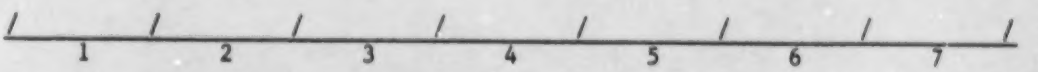
70. Plastics Technician



71. Chemical Technician



72. Telecommunication Technician



73. Biotechnology

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

74. Agribusiness

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

75. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

76. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

79. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

80. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

81. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

82. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

83. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

84. Other (specify)_____

Declining Occupation / 1 / 2 / 3 / 4 / 5 / 6 / 7 / Rapidly Growing Occupation

85. List other assumptions and trends that are occurring in your college community that have not been included.

86. What is the name of your administrative unit? (Institutional Affairs, Business Office, Student Services, Community Services, etc.)

87. What is your job title?

Appendix B

Rank Order of Variable by Mean

Appendix B
Rank Order of Variables by Mean

Rank	Variable	Mean	Standard Deviation
1	Q9	6.293	.884
2	Q20	6.259	.938
3	Q43	6.236	.865
4	Q41	6.069	.966
5	Q42	6.044	.958
6	Q29	6.010	1.045
7	Q40	5.995	1.132
8	Q39	5.812	1.220
9	Q28	5.791	.961
10	Q12	5.773	1.075
11	Q44	5.755	1.027
12	Q38	5.700	1.047
13	Q27	5.695	1.046
14	Q45	5.630	1 151
15	Q3	5.618	1.253
16	Q4	5.594	1.292
17	Q52	5.493	1.093
18	Q51	5.491	1.161
19	Q13	5.445	1.743
20	Q23	5.421	1.326
21	Q19	5.394	1.118
22	Q52	5.394	1.118
23	Q33	5.295	1.138
24	Q22	5.235	1.542
25	Q72	5.134	1.191
26	Q17	5.086	1.502
27	Q21	5.081	1.367
28	Q37	5.079	1.357
29	Q50	5.050	1.424
30	Q6	5.050	1.577
31	Q59	5.024	1.087
32	Q47	5.021	1.592
33	Q10	4.961	1.591
34	Q30	4.896	1.393
35	Q1	4.890	1.528
36	Q60	4.889	1.027
37	Q46	4.882	1.708
38	Q65	4.849	1.145
39	Q67	4.847	1.392
40	Q35	4.802	1.469

Appendix B

Rank Order of Variables by Mean

Rank	Variable	Mean	Standard Deviation
41	Q63	4.800	1.262
42	Q68	4.758	1.305
43	Q25	4.758	1.488
44	Q53	4.732	1.313
45	Q24	4.698	1.523
46	Q31	4.653	1.219
47	Q73	4.647	1.263
48	Q32	4.639	1.406
49	Q66	4.622	1.221
50	Q61	4.613	1.113
51	Q58	4.587	1.210
52	Q54	4.582	1.166
53	Q56	4.505	1.240
54	Q36	4.493	1.236
55	Q64	4.492	1.206
56	Q34	4.463	1.218
57	Q8	4.454	1.498
58	Q69	4.450	1.243
59	Q5	4.413	1.530
60	Q71	4.402	1.228
61	Q70	4.340	1.281
62	Q7	4.333	1.569
63	Q55	4.327	1.207
64	Q48	4.293	1.801
65	Q14	4.265	1.720
66	Q18	4.100	1.616
67	Q26	4.071	1.608
68	Q57	4.036	1.129
69	Q74	4.032	1.431
70	Q2	4.029	2.701
71	Q11	4.022	2.092
72	Q15	3.917	1.797
73	Q16	3.865	1.631
74	Q49	3.685	1.475

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